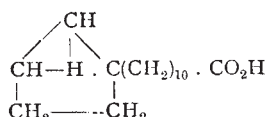


years after Sibthorp's foundation, Oxford's new professor is pointing out that while sixteen of the twenty-five university graduates recently appointed to the Indian Agricultural Department have been trained in Cambridge and Edinburgh, "Oxford has not supplied a single candidate for these Imperial posts." We should like to urge reconsideration of the subject on other grounds. Agriculture needs the support of the English universities, and in the past it has suffered through their neglect. By her influence on the young landowners who pass through her colleges Oxford might make her teaching felt on many an English estate.

## SOCIETIES AND ACADEMIES.

### LONDON.

**Chemical Society, March 7.**—Prof. R. Meldola, F.R.S., president, in the chair.—The constitution of chaulmoogric and hydnocarpic acids: M. Barrowcliff and F. B. Power. A study of the oxidation products of chaulmoogric acid leads to the conclusion that it exists in a state of tautomerism between 1- $\alpha$ -carboxy-*n*-dodecyl- $\Delta^4$ -cyclopentene and 1- $\alpha$ -carboxy-*n*-dodecyl-1:4-bicyclopentane. Hydnocarpic acid,  $C_{18}H_{34}O_2$ , is a homologue of chaulmoogric acid. Its constitution may accordingly be represented by the following formula:—



—Hydrolysis of amygdalin by acids: R. J. Caldwell and S. L. Courtauld. The authors have studied the action of acids in comparison with that of enzymes on this "bioside," and the results show that though amygdalin is ultimately resolved by acids into hydrogen cyanide, benzaldehyde, and two molecular proportions of glucose, the separation of the glucose is effected in two stages. By carefully hydrolysing amygdalin by means of a normal solution of hydrogen chloride at 60°, the authors have prepared mandelonitrile glucoside.—Mandelonitrile glucosides. Prulaurasin: R. J. Caldwell and S. L. Courtauld. Fischer's glucoside bears the same relation to prulaurasin as amygdalin bears to the isoamygdalin described by Dakin, which is to be regarded as the derivative of inactive mandelonitrile, amygdalin and Fischer's glucoside being derived from *i*-mandelonitrile. Sambunigrin must be regarded as the  $\beta$ -glucoside of *d*-mandelonitrile.—The hydrolysis of amygdalin by emulsin: S. J. M. Auld. The hydrolysis of amygdalin by emulsin may proceed in three ways, depending on the mode of attachment of the emulsin. The experiments so far carried out by the author indicate that benzaldehydecyanohydrin and the  $\alpha\beta$ -disaccharide are formed, and the latter then resolves into two molecules of dextrose.—Electrolytic reduction, part iii.: H. D. Law. The products of electrolytic reduction of the aromatic aldehydes in alkaline solution are compounds of the hydrobenzoin type, but this reaction is completely altered when a methyl group is substituted in the *ortho* or *meta* position of the benzene nucleus. Compounds of a resinous nature are obtained in the latter case.—New cerium salts: G. T. Morgan and E. Cahen. The aromatic sulphonates of this element are usually soluble, crystalline compounds resembling the thorium sulphonates previously described by one of the authors.—Volume changes, which accompany transformations in the system  $\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$ : H. M. Dawson and C. G. Jackson. The changes, which take place in the system  $\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$  when subjected to certain temperature variations, have been investigated by the dilatometric method.—Depression of the freezing point of aqueous solutions of hydrogen peroxide by potassium persulphate and other compounds: T. S. Price. Potassium persulphate causes a less molecular depression of the freezing point of aqueous solutions of hydrogen peroxide than it does of water, and the conclusion is drawn that an unstable compound is formed in solution.—The formation and reactions of imino-compounds, part iii., the

formation of 1:3-naphthylenediamine and its derivatives from *o*-toluonitrile. E. F. J. Atkinson, H. Ingham, and J. F. Thorpe.—The action of ethylene dibromide and of propylene dibromide on the disodium derivative of diacetylacetone: A. W. Bain.

**Mathematical Society, March 14.**—Sir W. D. Niven, vice-president, in the chair.—Mr. G. W. Evans-Cross exhibited his calculating machine, the myriometer. The instrument has several different forms, which are all, in principle, modifications of the slide-rule. In the form in which the instrument can be used for multiplication, the rule consists of a number, equal to that of the digits in one factor, of slips placed diagonally in a frame, and the slide carries as many cursors as there are digits in the other factor. The instrument will give exact results for numbers of six or eight digits. In other forms the instrument can be used for various calculations relating to commerce, such as the reduction of the interest on a stated sum from one percentage to another. In another form slides can be set so as to give the calendar of any year, B.C. or A.D., and all the new moons of the year.—Invariants of the general quadratic form *modulo* 2: Prof. L. E. Dickson. Complete sets of independent invariants, and also of linearly independent invariants, are obtained for quadratic forms of not more than five variables in the field of order two, and those invariants of quadratic forms of six variables which can be deduced are also given. It is shown that the complete classification of quadratic forms can be accomplished by means of invariant functions.—Linear partial differential equations of the first order: J. Brill. The paper is occupied with a general review of the theory and an endeavour to ascertain the relations of exceptional solutions to the solutions of classified types.—The reduction of the factorisation of binary septans and others to the solution of an indeterminate equation: Dr. T. Stuart.—An informal communication on the representation of functions by means of series of a special type was made by Prof. A. E. H. Love.

### PARIS.

**Academy of Sciences, March 11.**—M. Henri Becquerel in the chair.—Some details of the spectroheliograph: H. Deslandres. Remarks on a recent paper by M. Millochau in the *Comptes rendus*. Many of the details described by M. Millochau as new have been used by the author for years, and further details of working are now added.—A new contribution to the study of the stinging flies of inter-tropical Africa: A. Laveran. A detailed account of the various species found in the districts of Senegal, Mauritania, the Upper Senegal and Niger, French Guinea, the Congo Free State, and Mozambique.—The direct dehydration of dimethyl-isopropyl carbinol: Louis Henry. The dehydration of this alcohol might be expected to give rise to pure tetramethylethylene, and it was with this object in view that the experiments were carried out. The reaction proved to be not quite so simple, the fractionation of the hydrocarbons obtained by the action of acetic anhydride upon the alcohol giving tetramethylethylene and methyl-isopropylethylene, the former hydrocarbon being about three-quarters of the total product.—Some new results obtained in the detection and estimation of methane: Nestor Gréhan. An improvement of an apparatus previously described.—The perpetual secretary announced the death of François Joseph Herrgott, correspondent for the section of medicine and surgery.—A new comet: M. Giacobini (see p. 498).—The elastic deformations which leave invariable the lengths of a triple infinity of right lines: G. Koenigs.—Waves of shock and combustion. The stability of the explosive wave: MM. Crussard and Jouguet. It is assumed that the combustion is incomplete in the wave, but is completed behind adiabatically and reversibly according to the law of dissociation, and the consequences of this assumption are worked out.—The conditions of formation of electrified centres of feeble mobility in gases: Maurice de Broglie. Experiments on carbon monoxide flames and flames containing hydrogen lead to the conclusion that the presence of centres of feeble mobility in the gases issuing from flames appears to be related to the production in the flame of solid or liquid products, or to the presence of some centres previously existing in the normal state in the atmo-

spheric air.—A contribution to the study of the latent photographic image: Eug. **Demole**. Some experiments on the reversal of the image caused by the presence of a feeble oxidising agent, such as potassium ferricyanide. The author puts forward a theory of the process based on the formation of a hypothetical silver hypobromite.—An exact method of separating ammonia and methylamine: Maurice **François**. The method is based on the fact that ammonia is readily absorbed by yellow oxide of mercury, whilst methylamine is not acted upon by this reagent.—The constitution of the azo-derivatives of ethyl benzoylacetate: A. **Wahl**.—The  $\beta$ -chloroethyl and vinyl ketones: E. E. **Blaise** and M. **Maire**.—The influence of manganese salts on alcoholic fermentation: E. **Kayser** and H. **Marchand**. The effect of adding manganese salts to a fermentable liquid is to increase the amount of sugar fermented, the yields of alcohol, glycerine, and volatile acid all being greater.—A new glucoside, hydrolysable by emulsin, extracted from the seeds of a *Strychnos* from Madagascar: Em. **Bourquelot** and H. **Hérissé**. The name bakankosine is given to the new glucoside, and its method of preparation, properties, and products of hydrolysis are given in detail.—The cytological peculiarities of the development of the mother cells of the pollen of *Nymphaea alba* and *Nuphar luteum*: W. **Lubimenko** and A. **Maige**.—The ecological characters of the vegetation in the eastern region of the Kabyle and Djurjura: G. **Lapie**. The forest vegetation in this region presents well-characterised zones standing clearly in relation with the climatological, topographical, and edaphical conditions.—A phenomenon of plant pseudomorphosis analogous to the pseudomorphosis of minerals: N. **Jacobesco**.—A spiky formation characteristic of the last dorsal vertebra in man: R. **Robinson**.—The tectonic north of Meurthe-et-Moselle: René **Nicklès** and Henri **Joly**.

## CALCUTTA.

Asiatic Society of Bengal, February 6.—The exact determination of the fastness of the more common indigenous dyes of Bengal and comparison with typical synthetic dyestuffs, part i., dyeing on cotton: E. R. **Watson**. The author gives a summary of the available evidence as to the fastness of the indigenous Bengal dyes, and points out that this evidence is wanting in precision and is in many cases self-contradictory. The author has prepared samples of cotton dyed with the more common Bengal dyes, so far as possible according to native methods, and has tested the fastness of these dyeings (1) to light, (2) to washing with soap, (3) to alkalis, (4) to dilute acids such as perspiration, testing at the same time by the same methods a representative collection of dyeings with synthetic materials. Tables are given in which the fastness of each dyeing under each condition is expressed quantitatively. The dyestuffs turmeric, safflower, *palas* (*Butea frondosa*), *lathian* (*Bixa Orellana*), red sandal (*Pterocarpus santalinus*), and *padauk* (*Pterocarpus dalbergioides*) are of very inferior fastness. *Manjista* (*Rubia cordifolia*), catechu (*Acacia catechu*), and *bakam* (*Caesalpinia Sappan*) compare favourably with the great majority of synthetic dyes.—*Breynia vredenburghii*, an undescribed echinoid from the Indian Ocean: Major A. R. S. **Anderson**. The genus *Breynia* was founded in 1847 by Desor, for Spatangidae, characterised by the simultaneous presence of the three kinds of fasciole, internal, peripetalous, and subanal. Only one living species had hitherto been described, *Breynia australasica*, from the Pacific Ocean. Another species was discovered by Major Anderson at Port-Blair, in the Andamans, and has been named *Breynia vredenburghii*. The original specimen is now in the Indian Museum.—Note on the common raven (*Corvus corax*): Lieut.-Col. D. C. **Phillott**.

## DIARY OF SOCIETIES.

## THURSDAY, MARCH 21.

ROYAL INSTITUTION, at 3.—Biology and Progress: Dr. C. W. Saleeby.  
CHEMICAL SOCIETY, at 8.30.—The Synthesis of Polypeptides: Emil Fischer.—Organic Derivatives of Silicon, Part iii, *dl*-Benzylmethylthylpropylsilicane and Experiments on the Resolution of its Sulphonic Derivative: F. S. Kipping.—On the Reduction of Carbon Dioxide to form Aldehyde in Aqueous Solutions: H. J. H. Fenton.—The Mechanism of the Rusting of Iron: G. T. Moody.—Some Compounds of Guanidine with Sugars, Part i., R. S. Morrell and A. E. Bellars.

LINNEAN SOCIETY, at 8.—On the Origin of Angiosperms: E. A. Newell Arber and John Parkin.—*Exhibitions*: Water-colour Sketches of Alpine Flowers: Miss Helen Ward.—Photographs of Transvaal Trees and Tree Scenery: J. Burt Davy.  
INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—Rail Corrugation: J. A. Panton.

## FRIDAY, MARCH 22.

ROYAL INSTITUTION, at 9.—Rays of Positive Electricity: Prof. J. J. Thomson, F.R.S.  
PHYSICAL SOCIETY, at 5.—Experimental Mathematics: Mr. Pochin.—Logarithmic Lazytongs and Lattice Works: Mr. Blakesley.—A Micro-manometer: Mr. Roberts.—Electrical Conduction produced by heating Salts: Mr. Garrett.  
INSTITUTION OF CIVIL ENGINEERS, at 8.—A Point in Turbo-Alternator Design: F. J. Kean.

## SATURDAY, MARCH 23.

ROYAL INSTITUTION, at 3.—Röntgen, Kathode, and Positive Rays: Prof. J. J. Thomson, F.R.S.

## MONDAY, MARCH 25.

ROYAL GEOGRAPHICAL SOCIETY, at 8.30.—Photographic Report of a Journey through the Highlands of Duab (Zarafshan, &c.): W. Rickmer Rickmers.  
INSTITUTE OF ACTUARIES, at 5.—On the Relation between the Theories of Compound Interest and Life Contingencies: J. M. Allen.

## TUESDAY MARCH 26.

INSTITUTION OF CIVIL ENGINEERS, at 8.—The Application of Hydro-Electric Power to Slate Mining: M. Kellow.—Electrically Driven Winding Gear and the Supply of Power to Mines: A. H. Preece.

## WEDNESDAY, MARCH 27.

GEOLOGICAL SOCIETY, at 8.—On the Southern Origin attributed to the Northern Zone in the Savoy and Swiss Alps: Prof. T. G. Bonney, F.R.S.—The Coral-Rocks of Barbados: J. B. Harrison, C.M.G.  
BRITISH ASTRONOMICAL ASSOCIATION, at 5.

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